

Date: Tuesday, 21/04/2009 4:01:18 PM  
 User: Julie Dawson

## Process Sheet

split

Customer : CU-DAR001 Dart Helicopters Services	Drawing Name : BLADE FITTING
Job Number : 47349 -\	
Estimate Number : 12300	
P.O. Number :	Part Number : D3488042
This Issue : 21/04/2009 S.O. No. :	Drawing Number : D3488 / DSK101
Prsht Rev. : NC	Project Number : N/A
First Issue : / / Type : MACHINED PARTS	Drawing Revision : B / D
Previous Run : 45782	Material :
Written By :	Due Date : 10/05/2009 Qty: 20 Um: Each
Checked & Approved By : <u>JULIE DAWSON</u>	
Comment : Est Rev:A New Issue 06-02-28 JLM	
Est Rev:B As per Rev B 06-03-30 JLM	
Est Rev:C Now On Doosan Lathe JLM' Verified BY:DD	

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6103003	Round Billet, Aluminum
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Comment: Qty.: 1.0000 Each(s)/Unit Total: 20.0000 Each(s)  
 Alluminum Round Billet D6103-003  
 Batch: B45034 X 8

09/04/24

2.0	DOOSAN LATHE	DOOSAN LATHE
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Comment: DOOSAN CNC LATHE  
 1-Turn as per Dwg DSK 101 & Folio FA627  
 2-Deburr

09/04/24

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
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Comment: INSPECT PARTS AS THEY COME OFF MACHINE

09/04/24

4.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
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Comment: HAAS CNC VERTICAL MACHINING #1  
 1-Machine as per Folio FA627 & Dwg D3488  
 2-Deburr

09/04/29  
 J.L

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3488-042 PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR: <u>47349</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
<u>09/01/29</u>	<u>4</u>	<u>- 1 part .125 slot was machined too long on Doosan lathe causing the .508 holes at the .590 dimension to be off by .025 on the HAAS part didn't fit on 3rd opp of milling</u>	<u>BS/10/12</u>	<u>Open <math>\phi 0.508</math> to max tolerance of <math>\phi 0.516 - 0.518</math> to allow for a better fit, and test fit with Q.C on a skid to be to ensure it will be acceptable</u>			<u>BS/10/12</u>	<u>BS/05-01</u>
			<u>BS/10/12</u>				<u>BS/10/12</u>	<u>BS/05-01</u>
				<u>work will be continued on the split wro the next run. Set-up was removed from machine</u>				<u>BS/05-07</u>

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BLADE FITTING

Job Number: 47349

Part Number: D3488042

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

JI 09/04/29

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

amf / mms 09/05/01

(7)

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

umd / FL

09/05/04

(17)

8.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

m109996

START TIME:

1:30

OVEN TEMPERATURE:

320°

FINISH TIME:

2:00

FL 09/05/04

(7)

9.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

09-05-05

(X7)

10.0

ALS71032225

INSERT



Comment: Qty.: 4.0000 Each(s)/Unit Total: 80.0000 Each(s)

Pick:

Qty Part Number Description Batch

4 ALS7-1032-225 Insert M110118

JI

11.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per Dwg D3488

JI

09-05-06

(X7)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 21/04/2009 4:01:18 PM  
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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: BLADE FITTING

Job Number: 47349

Part Number: D3488042

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

05/05/06 (x2)

13.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: FP-8

ed 05-05-06 (x2)

14.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/05/07

Job Completion



mf  
09-05-06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	47349
<b>Description:</b> Blade Fitting, RH / Turning Detail for D3488-1/-2		<b>Part Number:</b>	D3488-2
<b>Inspection Dwg:</b> D3488 / DSK101 <b>Rev:</b> B / D		<b>Page 1 of 2</b>	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article     ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Lathe Section						
Ø2.150	+/-0.005	2.150	✓			
Ø2.780	+/-0.005	2.780	✓			
Ø3.125	+/-0.010	3.125	✓			
Ø3.346	+/-0.010	3.346	✓			
0.125 x 45°	+/-0.010 x +/-0.1°	0.125 x 45°	✓			
8.000	+0.030/-0.000	8.017	✓			
9.250	+/-0.010	9.250	✓			
0.188	+/-0.010	0.188	✓			
R0.032	+/-0.010	2.032	✓			
R0.062	+/-0.010	2.062	✓			
Ø0.297	+0.005/-0.001	0.300	✓			
Ø0.430	+/-0.010	0.430	✓			
0.100	+/-0.010	0.100	✓			
0.125	+/-0.010	0.125	✓			
2.620	+/-0.010	2.62	✓			
3.500	+/-0.010	3.500	✓			
1.005	+/-0.010	1.005	✓			
Ø0.484	+0.005/-0.001	0.485	✓			
1.180	+/-0.010	1.180	✓			
3.150	+/-0.010	3.150	✓			
3.070	+/-0.010	3.070	✓			
R0.063	+/-0.010	R0.063	✓			

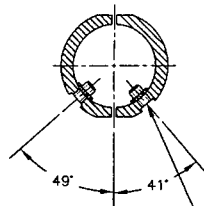
<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> 4349
<b>Description:</b> Blade Fitting, RH / Turning Detail for D3488-1/-2		<b>Part Number:</b> D3488-2
<b>Inspection Dwg:</b> D3488 / DSK101 <b>Rev:</b> B / D		<b>Page 2 of 2</b>

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
<b>Milling Section</b>						
Ø0.508	+0.006/-0.001	.510	✓			
0.750	+/-0.010	.758	✓			
1.500	+/-0.010	1.500	✓			
11.18	+/-0.030	11.180	✓			
R0.062	+/-0.010	.062	✓			
0.125	+/-0.010	.130	✓			
0.590	+/-0.010	.589	✓			
0.793	+/-0.010	.795	✓			
1.351	+/-0.010	1.352	✓			
1.317	+/-0.010	1.308	✓			
1.802	+/-0.010	1.808	✓			

<b>Measured by:</b> JL	<b>Audited by:</b> mmf	<b>Prototype Approval:</b> N/A
<b>Date:</b> 09/04/29	<b>Date:</b> 09/05/01	<b>Date:</b> N/A

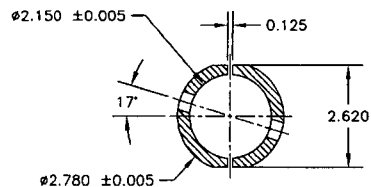
Rev	Date	Change	Revised by	Approved
A	06.03.31	New Issue	KJ/JLM	
B	08.09.19	Reformat P/O D3488-042	KJ/JLM	
C	08.12.02	Dimension 8.000 removed	KJ/JLM	





SECTION B-B

Ø0.297  
C'BORE Ø0.430 x 0.100  
INSTALL ALS4-1032-225 (OR AKS4-1032-225  
OR ALS7-1032-225 OR AKS7-1032-225)  
INSERTS AFTER FINISH  
(4 PLACES)



SECTION A-A

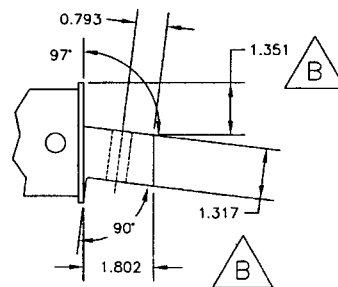
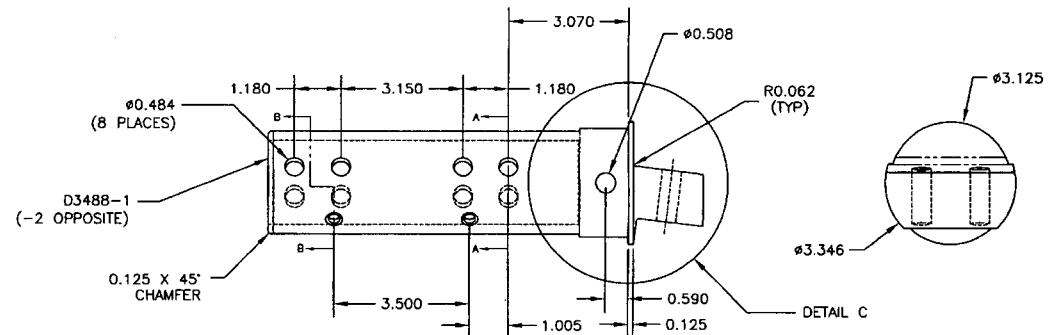
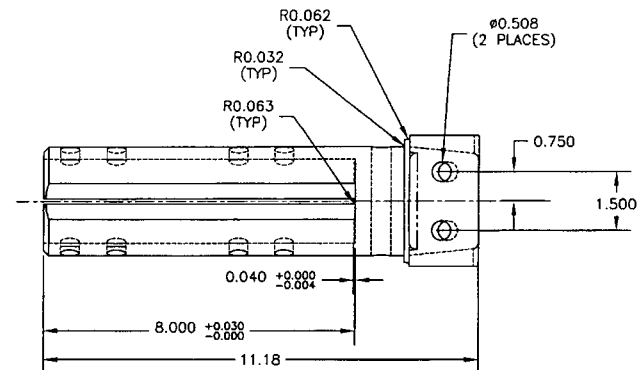
**D3488-041/-042 BLADE FITTING ASSEMBLY PARTS LIST**

QTY -041	QTY -042	PART NUMBER	DESCRIPTION
X	X	D3488-041	BLADE FITTING ASSEMBLY (LH)
		D3488-042	BLADE FITTING ASSEMBLY (RH)
1		D3488-1	BLADE FITTING (LH)
		D3488-2	BLADE FITTING (RH)
4	4	ALS4-1032-225 or AKS4-1032-225 or ALS7-1032-225 or AKS7-1032-225	INSERT

**D3488-041/-042 BLADE FITTING**

- MATERIAL: MAKE D3488-1/-2 FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9 (REF. DART MATERIAL SPEC M7075T73R) ACID ETCH, ALODINE PER DART OSI 005 4.1 POWDER COAT WHITE (REF 4.3.5.1) PER DART OSI 005
- FINISH:
- BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- INSTALL INSERTS AFTER POWDER COAT
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART OSI 018 UNLESS OTHERWISE NOTED

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
17334



DETAIL C

D3488-041 SHOWN (D3488-042 OPPOSITE)

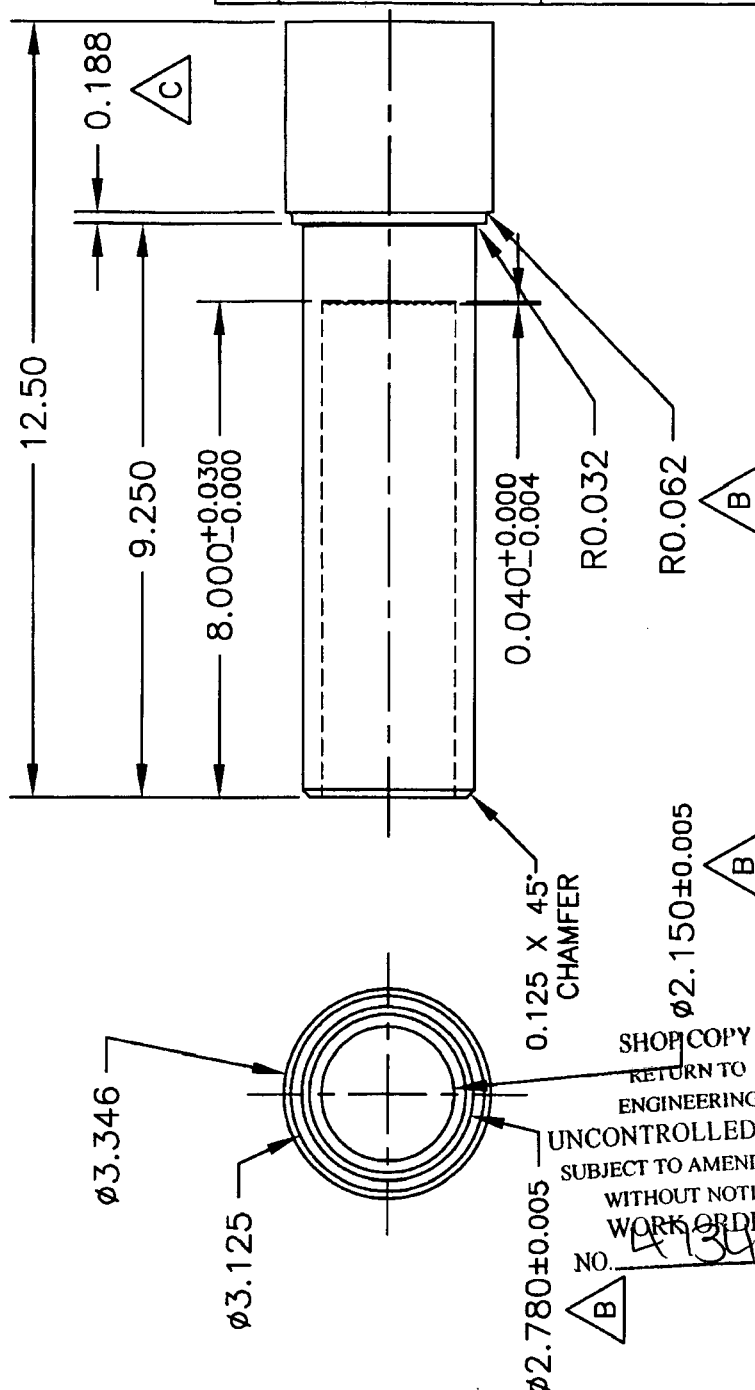
RELEASED  
04-03-14 PH  
REV 05  
ECN #781

B	06.03.15	CHANGE THICKNESS
A	05.12.20	NEW ISSUE
DESIGN	PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED	PH	DRAWING NO. D3488
DATE	06.03.15	TITLE BLADE FITTING
		REV. B SHEET 1 OF 1 SCALE 1:3

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DESIGN PH	DRAWN BY PH	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. DSK 101	REV. D SHEET 1 OF 1
DATE 06.05.09		TITLE D3488-1/-2 TURNING DETAIL	SCALE 1:3
A	05.12.21	NEW ISSUE	
B	06.03.02	ADD TOLERANCES AND RADIUS	
C	06.04.17	0.188 WAS 0.125	
D	06.05.09	REMOVE DIAMETER FOR CHAMFER	



1) MATERIAL: NONE

2) FINISH: NONE

3) BREAK UNMARKED SHARP EDGES 0.010 TO 0.020

4) ALL DIMENSIONS ARE IN INCHES

5) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

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